

WHAT IS CLAIMED IS:

1. An electrophotographic image forming apparatus,  
using a halftone spot consisting of multiple dot images formed  
in pixel areas so as to represent a gray scale and to reproduce  
an image, comprising:

a halftone processor for generating image reproduction data  
for each pixel by referring to a transformation table wherein  
gray level data for said image and correlated image reproduction  
data are stored,

wherein said transformation table includes:

look-up tables, in each of which gray level data and  
correlated image reproduction data are stored; and

a pattern matrix, elements of which are so correlated  
with multiple pixels in a predetermined area of the image that  
each indicates a look-up table to be referred to; and

wherein said image reproduction data stored by each of said  
look-up tables includes size data and position data for virtual  
dots, each of which corresponds to one of said multiple dot  
images.

2. An electrophotographic image forming apparatus  
according to claim 1, wherein said image reproduction data stored  
by at least one of said look-up tables includes different position  
data in accordance with gray level.

3. An electrophotographic image forming apparatus according to claim 1, wherein said position data for said virtual dots includes, in accordance with said gray level, either information indicating said virtual dots are located on a left in the pixel area or information indicating said virtual dots are located on a right in the pixel area.

4. An electrophotographic image forming apparatus according to claim 1, wherein said position data for said virtual dots includes position information concerning a location of said virtual dot in the pixel area that is consonant with gray levels, and wherein in at least one of said look-up tables, said position information is changed in accordance with said gray level.

5. An electrophotographic image forming apparatus, using a halftone spot consisting of multiple dot images formed in pixel areas so as to represent a gray scale and to reproduce an image, comprising:

a halftone processor for generating image reproduction data for each pixel by referring to a transformation table wherein gray level data for said image and correlated image reproduction data are stored;

wherein said transformation table includes:

first look-up tables that each store gray level data

and correlated first image reproduction data, including size data for virtual dots, each of which corresponds to one of said dot images;

second look-up tables that each store gray level data  
5 and correlated second image reproduction data, including size data for virtual dots, each of which corresponds to one of said dot images; and

a pattern matrix, elements of which are correlated with multiple pixels in a predetermined area of an image and  
10 each indicate one of said first look-up tables and one of said second look-up tables that are to be referred to; and

wherein number of said first look-up tables and number of said second look-up tables is smaller than number of elements of said pattern matrix.

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6. An electrophotographic image forming apparatus according to claim 5, wherein said image reproduction data stored by at least one of said look-up tables includes different position data in accordance with gray level.

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7. An electrophotographic image forming apparatus according to claim 5, wherein said pattern matrix includes first and second elements that are correlated with the same first look-up table and different second look-up tables.

8. An electrophotographic image forming apparatus according to claim 5, wherein said pattern matrix includes first and second elements that are correlated with different first look-up tables and the same second look-up table.

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9. An electrophotographic image forming apparatus according to claim 1, wherein, when the gray level of said image to be reproduced is a first level, halftone spots are grown while intervals are maintained, and wherein, when the gray level of said image to be reproduced is at a second level higher than said first level, said halftone spots are grown by being connected like a line.

10. An electrophotographic image forming apparatus, using a halftone spot consisting of multiple dot images formed in pixel areas so as to represent a gray scale and to reproduce an image, comprising:

a halftone processor for generating image reproduction data for each pixel by referring to a transformation table wherein gray level data for said image and correlated image reproduction data are stored,

wherein said transformation table includes:

look-up tables in which gray level data are stored along with correlated image reproduction data, and

a pattern matrix, elements of which are correlated

with multiple pixels in a predetermined area of the image and each indicate one of said look-up tables to be referred to, and

wherein, in addition to said look-up tables to be referred to, said pattern matrix includes position data for virtual dots, which each correspond to one of said dotted images.

11. An electrophotographic image forming program product, using a halftone spot consisting of multiple dot images formed in pixel areas so as to represent a gray scale and to reproduce an image, permitting a computer to perform:

a halftone process for generating image reproduction data for each pixel by referring to a transformation table wherein gray level data for said image and correlated image reproduction data are stored,

wherein said transformation table includes:

look-up tables, in each of which gray level data and correlated image reproduction data are stored; and

a pattern matrix, elements of which are so correlated with multiple pixels in a predetermined area of an image that each indicates a look-up table to be referred to; and

wherein said image reproduction data stored by each of said look-up tables includes size data and position data for virtual dots, each of which corresponds to one of said multiple dot images.

12. An electrophotographic image forming program product, using a halftone spot consisting of multiple dot images formed in pixel areas so as to represent a gray scale and to reproduce an image, permitting a computer to perform:

5 a halftone process for generating image reproduction data for each pixel by referring to a transformation table wherein gray level data for said image and correlated image reproduction data are stored;

wherein said transformation table includes:

10 first look-up tables that each store gray level data and correlated first image reproduction data, including size data for virtual dots, each of which corresponds to one of said dot images;

15 second look-up tables that each store gray level data and correlated second image reproduction data, including size data for virtual dots, each of which corresponds to one of said dot images; and

20 a pattern matrix, elements of which are correlated with multiple pixels in a predetermined area of an image and each indicate one of said first look-up tables and one of said second look-up tables that are to be referred to; and

wherein number of said first look-up tables and number of said second look-up tables is smaller than number of pixels in said pattern matrix.

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13. An electrophotographic image forming apparatus according to claim 5, wherein, when the gray level of said image to be reproduced is a first level, halftone spots are grown while intervals are maintained, and wherein, when the gray level of said image to be reproduced is at a second level higher than said first level, said halftone spots are grown by being connected like a line.

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